Video-338/348PCI series

NVIDIA GeForce™ 6200 series

User's Manual

Version 10.00

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Introduction

Video-338/348PCI series video accelerators are based on NVIDIA GeForce™ 6200 core technology. Video-338/348PCI series feature NVIDIA UltraShadow II technology designed to enhance the performance of shadow-intensive games.

Powered by the proven NVIDIA CineFX 3.0 engine, these advanced GPUs enable unlimited programmability and infinite program length, allowing develops to create new class of advanced visuals and effects. In addition, features such as displacement mapping enable the creation of unique 3D characters and objects, allowing develops to alter a 3D models appearance on an individual vertex basis. Through this technique, developers can create ultra realistic models that fully interact with the unique lighting of a particular environment. In addition, through Shader Model 3.0 and the advanced CineFX 3.0 engine, game develops can create complex lifelike effects like skin, hair and shadows that fool the eye of even the most discriminating game enthusiast.

Video-338/348PCI series deliver unmatched video features and functionality through the industry's first on-chip video processor. This dedicated unit on the GPU handles the lion's share of the video processing load, freeing up the CPU for other tasks. The video processor delivers MPEG support for encoding and decoding of both analog and digital video content, as well as high quality video scaling and filtering for impeccable playback quality at any widow size. An integrated TV encoder allows you to connect your PC to TV for direct to TV playback and advanced adaptive de-interlacing technology provides smooth playback on progressive displays.

Built on the foundation of the industry-renowned NVIDIA Unified Driver Architecture (UDA), Video-338/348PCI series deliver unmatched compatibility with the widest range of games and applications for the ultimate "install and play" experience. Equip yourself with a Video-338/348PCI series GPU so you can play your games the way it's meant to be played.

Features and Specifications

Video-338/348PCI series

CineFX 3.0 Engine

The third-generation of the NVIDIA® CineFX™ engine unleashes the power of the latest NVIDIA GPUs and streamlines the creation of complex visual effects. Through the power of the Microsoft® DirectX® 9.0 Shader Model 3.0 and OpenGL® 1.5 APIs, programmers can now develop shader programs utilizing these technologies and techniques:

Infinite length shader programs: With CineFX 3.0 there are no hardware-imposed limitations on shader programs. The technology and speed advancements of CineFX 3.0 ensure that longer programs will run blazingly fast.

Dynamic flow control: Additional looping/branching options and new subroutine call/return functions give programmers even more choices for writing efficient shader programs.

Displacement mapping: CineFX 3.0 allows vertex processing with textures, providing a new level of depth and realism to every component, surface, and character in a scene. Displacement mapping allows developers to make subtle changes in a model's geometry with very little computational cost.

Vertex frequency stream divider: Effects can be efficiently applied to multiple characters or objects in a scene, providing individuality where models are otherwise identical.

Multiple Render Target (MRT) technology: MRTs allow for deferred shading, a technique where the lighting of a scene can be done after rendering all of the geometry, eliminating multiple passes through the scene. Photorealistic lighting can be created while avoiding unnecessary processing time for pixels that do not contribute to the visible portions of an image.

With the increased horsepower provided by the CineFX 3.0 engine, developers can create more unique game features and effects than ever before. New effects include subsurface scattering, providing depth and realistic translucence to skin and other surfaces; soft shadows for sophisticated lighting effects; accurately represented environmental and ground shadows; and global illumination for incredibly photorealistic lighting. All of these effects can be combined to create intricate, detailed, true-to-life scenes that completely immerse you in the game environment.

NVIDIA CineFX 3.0 is poised to unleash a new level of programming creativity. With full DirectX 9.0 Shader Model 3.0 support, the newest Video-338/348PCI series will soon power a new generation of games with unmatched realism, digital worlds with mind-blowing complexity, and lifelike characters that move through cinematic-quality environments.

Intellisample Technology
The industry's fastest antialiasing delivers ultra-realistic visuals, with no jagged edges, at lightning-fast speeds. Visual quality is taken to new heights through a new rotated grid sampling pattern.

UltraShadow II Technology
Video-338/348PCI series of GPUs delivers the patent-pending NVIDIA® UltraShadow™ II technology, which can be applied to today's games to build stunning visual effects and to create distinctive digital environments. With a system powered by a Video-338/348PCI series GPU, anytime a game or application calculates shadows, UltraShadow II will enhance the overall performance. With UltraShadow II hardware, the more passes that are required for the lighting and shadow calculations in a scene, the more significant the performance improvement, with the most complex scenes achieving the most noticeable results.
Thus, emerging next-generation games, that employ multiple light sources with many visible objects in each scene—such as *Doom III* from id Software—will see dramatic improvements in execution speeds. The technology advancements in UltraShadow II also deliver a 4× performance increase (compared to the previous generation) for passes involving shadow volumes.

NVIDIA UltraShadow II gives developers the ability to calculate shadows much more quickly by eliminating unnecessary areas from consideration. By defining a bounded portion of a scene (called "depth bounds"), and focusing calculations only on the area most affected by the light source, developers can greatly accelerate the shadow generation process. With the ability to fine-tune shadows within critical regions, developers create incredible visualizations that mimic reality, and still achieve awesome performance for fast-action games. UltraShadow II also works perfectly with NVIDIA® Intellisample 3.0 technology to ensure that shadow edges are properly antialiased.

Unified Driver Architecture (UDA)

The NVIDIA UDA guarantees forward and backward compatibility with software drivers. This simplifies upgrading to a new NVIDIA product because all NVIDIA products work with the same driver software.

nView Multi-Display Technology
The nView hardware and software technology combination delivers maximum flexibility for multi-display options and provides unprecedented end-user control of the desktop experience.

Digital Vibrance 3.0
This feature allows the user to adjust color controls digitally to compensate for the lighting conditions of their workspace, in order to achieve accurate and bright colors in all conditions.

128-Bit Studio-Precision Computation
128-bit studio-precision computation through the entire pipeline prevents image defects due to low precision and ensures the best image quality for even the most demanding applications

Full-Speed 32-Bit Color Precision
Delivers increased image quality with no performance compromise.

Full MPEG Support
Delivers a stunning video experience through encoding and decoding of analog and digital content.

Advanced Adaptive De-Interlacing
Smoothes video and DVD playback on progressive displays

Video Scaling and Filtering
High-quality scaling and filtering technology improves video playback quality at any window size, including full-screen HDTV resolutions.

Integrated TV Encoder
Provides best-of-class TV-out functionality for resolutions up to 1024x768.

Microsoft® DirectX® 9.0 Optimizations and Support
Ensures the best performance and application compatibility for all DirectX 9 applications.

OpenGL® 1.5 Optimizations and Support
Ensures the best performance and application compatibility for all OpenGL applications.

Dual 400MHz RAMDACs
Blazing-fast RAMDACs support dual QXGA displays with ultra-high, ergonomic refresh rates–up to 2048x1536@85Hz.

Compatibility

- NVIDIA Unified Driver Architecture (UDA)
- Fully compliant with OpenGL 1.5
- Microsoft DirectX 9.0
- WHQL-certified for Windows XP, Windows 2000, Windows Vista, Windows 7

PERFORMANCE

- Up to 1.2 billion texels per second fill rate
- Up to 225 million vertices per second
- 128-bit memory interface
- 4 Pixels/Clock Rendering Pipeline
- 400MHz RAMDACs support

System Requirement

- Intel Pentium® P4 or compatible system with PCI extension slot
- Hard Drive with at least 200MB Free space
- MS Windows® 7/Vista/XP/2000 operating system

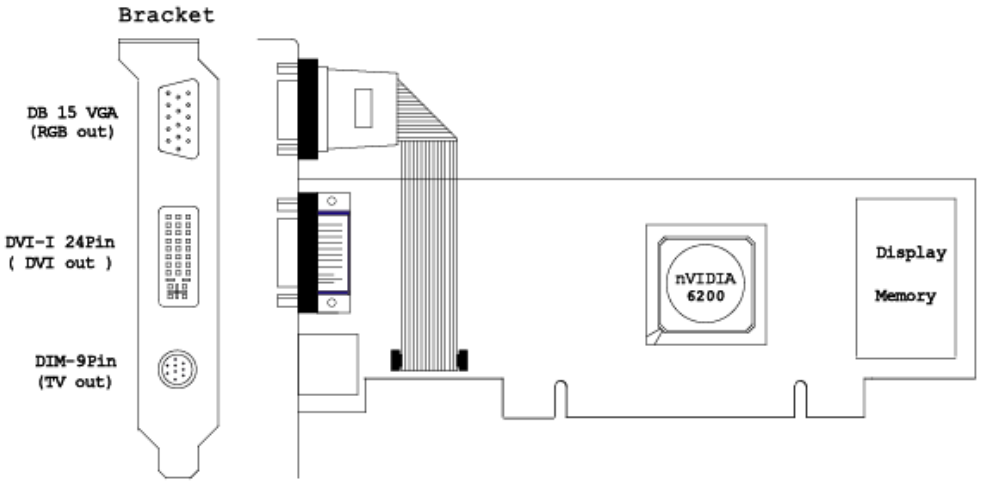
Check List

- Video-338/348PCI series Multimedia Accelerator
- Mini-DIN 9-pin (TV-Out) converter cable for Composite RCA or S-Video Out connection – Video-338PCI-DVI, Video-348PCI-DVI, Video-348PCI-256DVI
- DVI to RGB converter – Video-338PCI-DVI, Video-348PCI-DVI, Video-348PCI-256DVI
- LFH 59 pin to Dual VGA adapter cable (part# CB59D0001) – Video-338PCI-LP, Video-348PCI-LP, Video-348PCI-256LP, Video-348PCI-Quad
- Converter cable – converts MD-9pin to DB-15 VGA – Video-338PCI-LX, Video-338PCI-DX, Video-348PCI-LX, Video-348PCI-DX
- 4-Pin to 6-Pin power adapter - Video-348PCI-Quad
- Software & Documents CD
- Quick Start Guide (Printed)

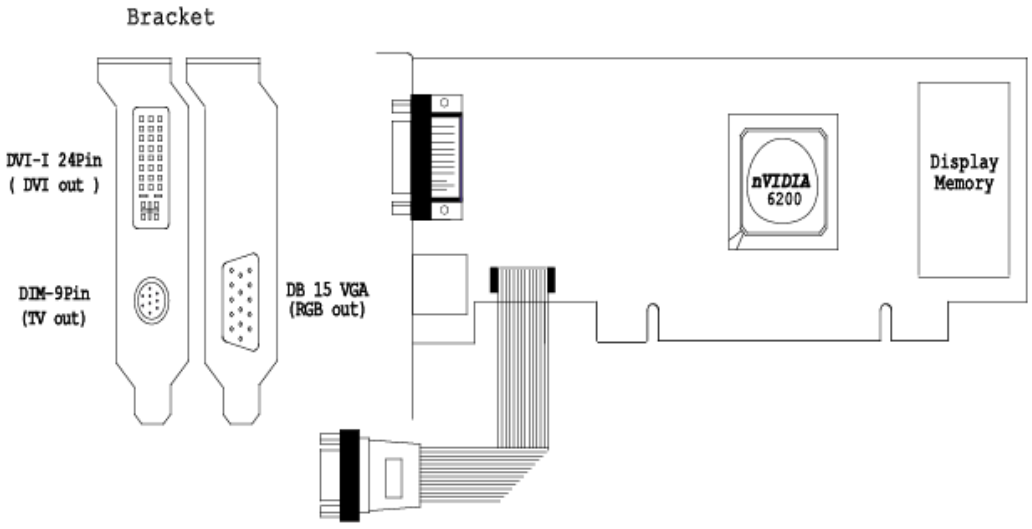
Hardware Description

Video-338PCI-DVI

Video-348PCI-DVI / Video-348PCI-256DVI

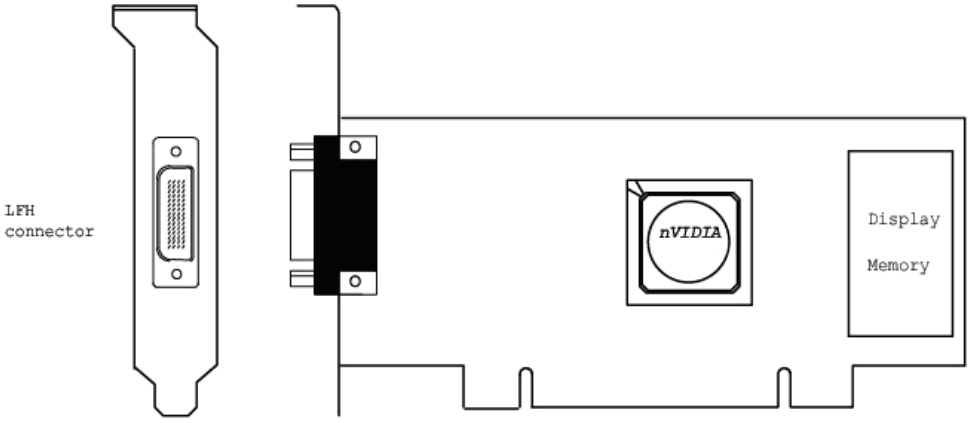


Low profile configuration



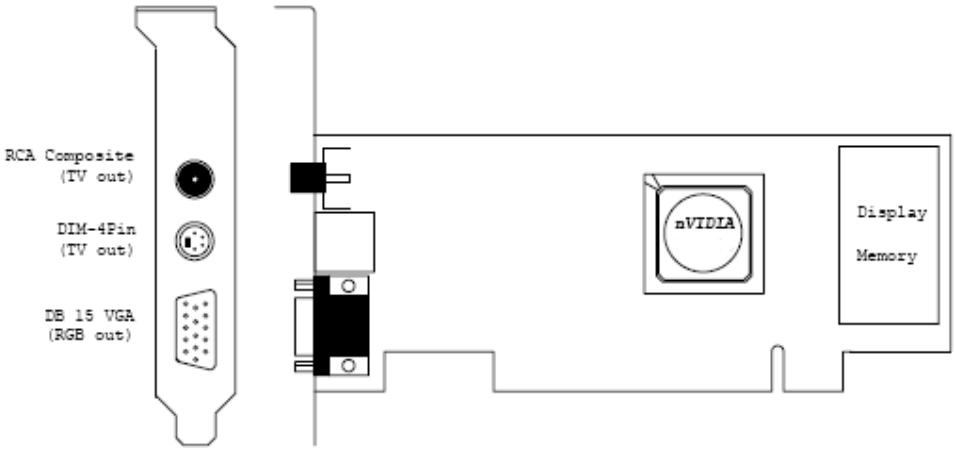
Video-338PCI-LP

Video-348PCI-LP / Video-348PCI-256LP



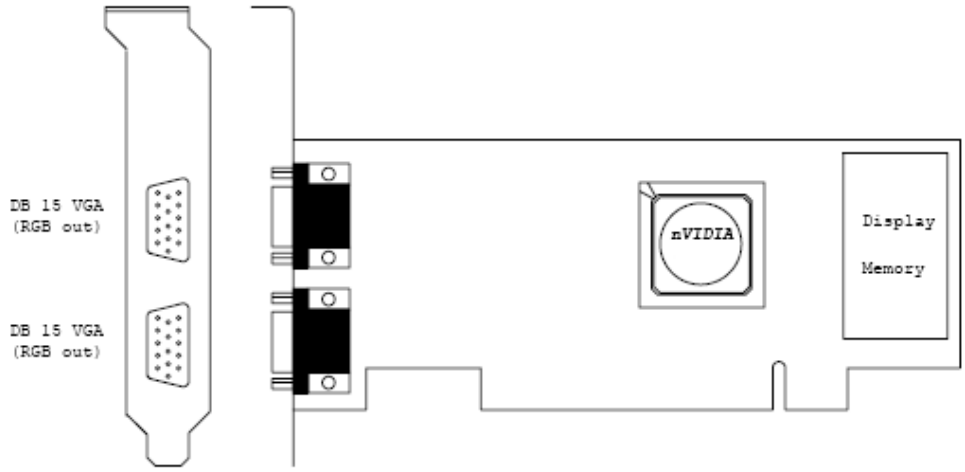
Video-338PCI-TV / Video-338PCI-128TV

Video-348PCI-TV / Video-348PCI-256TV



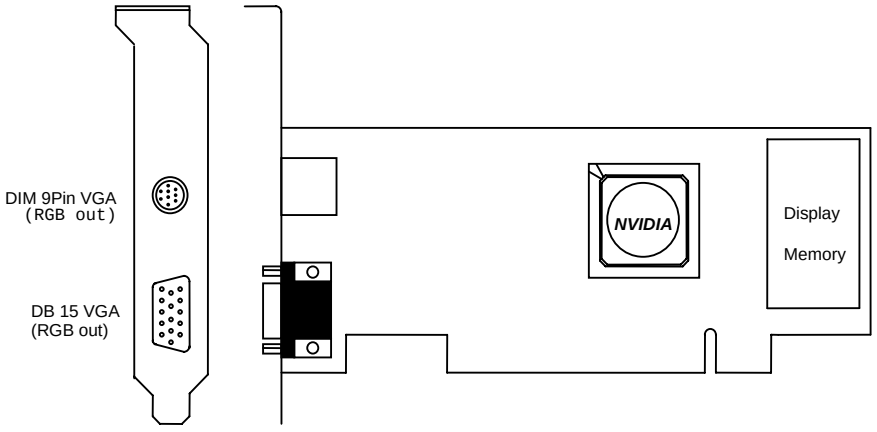
Video-338PCI-Twin / Video-338PCI-128Twin

Video-348PCI-Twin / Video-348PCI-256Twin

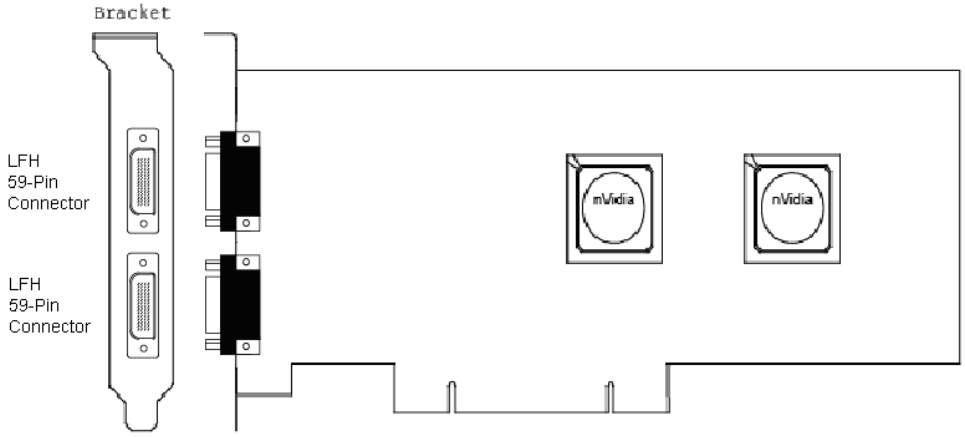


Video-338PCI-LX / Video-338PCI-DX

Video-348PCI-LX / Video-348PCI-DX



Video-348PCI-Quad



Product name / PCB version		Core Chipset	PCB Size	Memory Size	
Video-338PCI-DVI	82338P	NVIDIA GeForce 6200A	W=5.6" X H=2.54"	32M*16 x 4 DDR RAM	256MB
Video-338PCI-LP	82338R	NVIDIA GeForce 6200A	W=4.82" X H=2.55"	32M*16 x 4 DDR RAM	256MB
Video-338PCI-Twin	82338M	NVIDIA GeForce 6200A	W=5.57" X H=2.6"	32M*16 x 4 DDR RAM	256MB
Video-338PCI-128Twin	82338M	NVIDIA GeForce 6200A	W=5.57" X H=2.6"	16M*16 x 4 DDR RAM	128MB
Video-338PCI-LX	82338M	NVIDIA GeForce 6200A	W=5.57" X H=2.6"	32M*16 x 4 DDR RAM	256MB
Video-338PCI-DX	82338M	NVIDIA GeForce 6200A	W=5.57" X H=2.6"	16M*16 x 4 DDR RAM	128MB
Video-338PCI-TV	82338N	NVIDIA GeForce 6200A	W=5.57" X H=2.6"	32M*16 x 4 DDR RAM	256MB
Video-338PCI-128TV	82338N	NVIDIA GeForce 6200A	W=5.57" X H=2.6"	16M*16 x 4 DDR RAM	128MB
Video-348PCI-256DVI	82348P	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	32M*16 x 4 DDR2 RAM	256MB
Video-348PCI-DVI	82348P	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	64M*16 x 4 DDR2 RAM	512MB
Video-348PCI-256LP	82348Q	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	32M*16 x 4 DDR2 RAM	256MB
Video-348PCI-LP	82348Q	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	64M*16 x 4 DDR2 RAM	512MB
Video-348PCI-DX	82348M	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	32M*16 x 4 DDR2 RAM	256MB
Video-348PCI-LX	82348M	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	64M*16 x 4 DDR2 RAM	512MB
Video-348PCI-256Twin	82348M	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	32M*16 x 4 DDR2 RAM	256MB
Video-348PCI-Twin	82348M	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	64M*16 x 4 DDR2 RAM	512MB
Video-348PCI-256TV	82348N	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	32M*16 x 4 DDR2 RAM	256MB
Video-348PCI-TV	82348N	NVIDIA GeForce 6200A	W=6.24" X H=2.713"	64M*16 x 4 DDR2 RAM	512MB
Video-348PCI-Quad	82348S	NVIDIA GeForce 6200A	W=6.75" X H=4.00"	64M*16 x 8 DDR2 RAM	1GB *

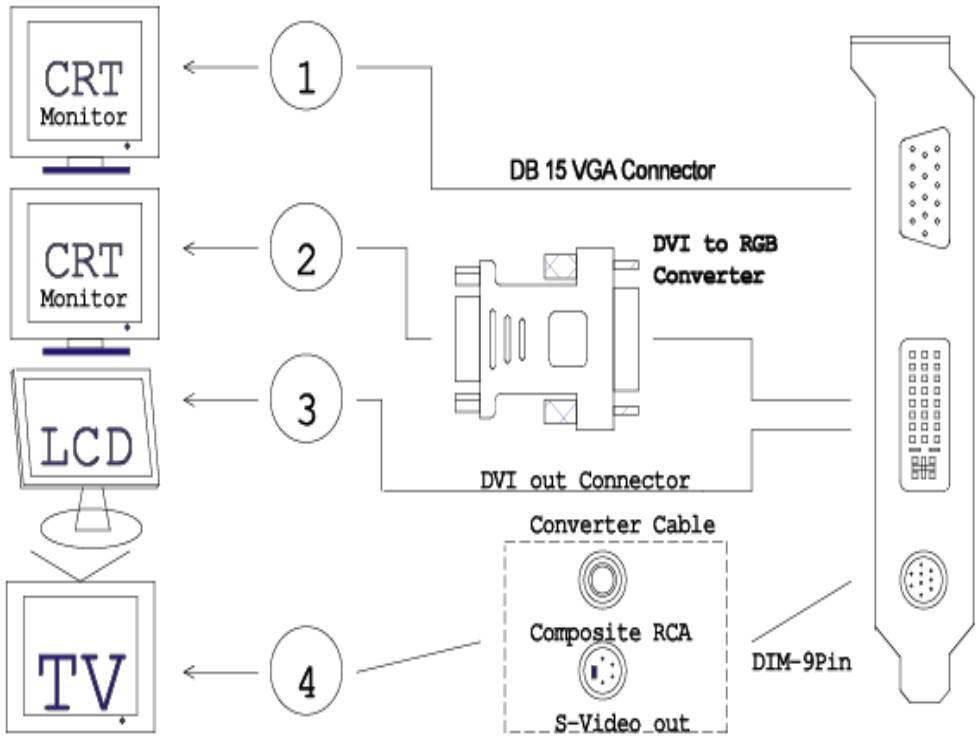
* 1GB is the total amount of memory onboard. The actual memory for each Graphics Processor Unit is 512MB.

Accessories for VGA cards are sold separately. Please go to **http://Store.anvshopper.net** for more details.

Display Devices Output

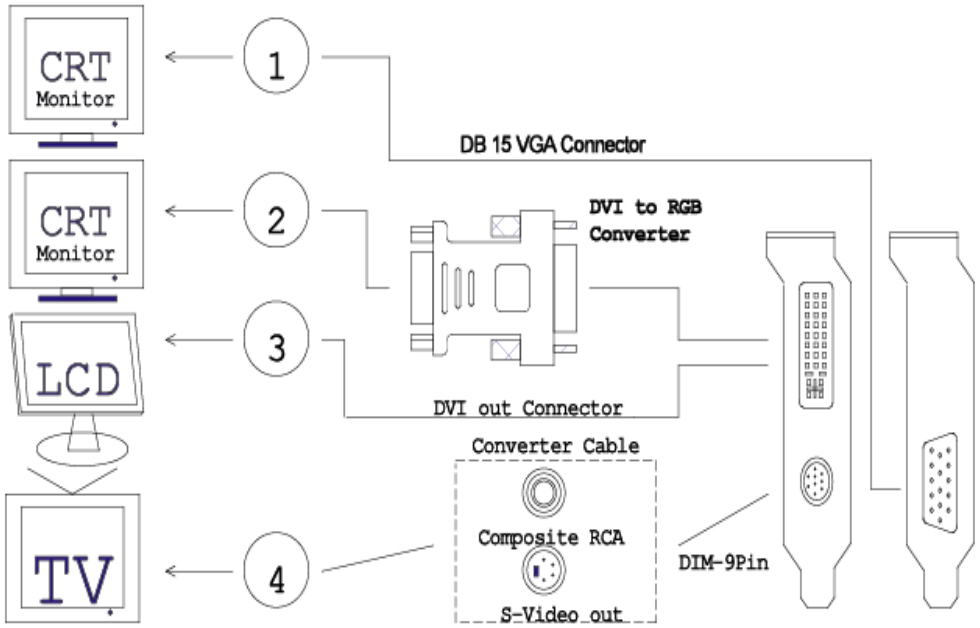
Video-338PCI-DVI

Video-348PCI-DVI / Video-348PCI-256DVI



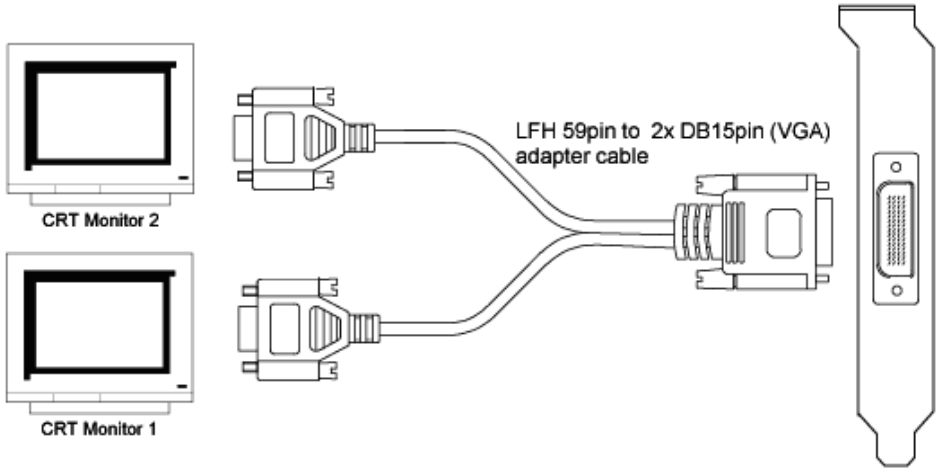
1. RGB out - DB15 VGA connector to analog monitor.
2. DVI converts to RGB with DVI-RGB converter for Dual RGB out.
3. DVI out - DVI connects to LCD display panel.
4. TV-Out - MD4 connector converts S-Video to RCA Composite Output or direct connects S-Video to TV set.

Low profile configuration

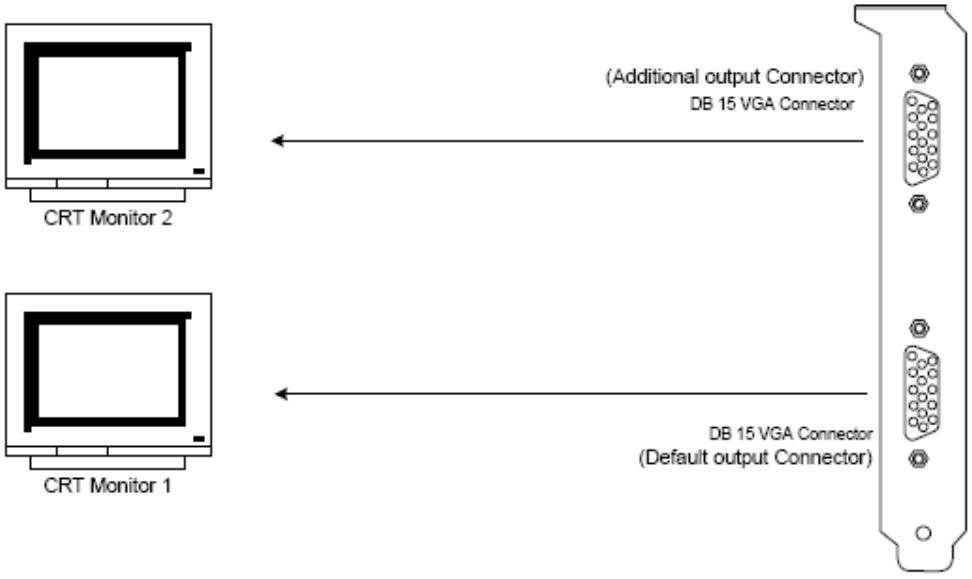


1. RGB out - DB15 VGA connector to analog monitor.
2. DVI converts to RGB with DVI-RGB converter for Dual RGB out.
3. DVI out - DVI connects to LCD display panel.
4. TV-Out - MD4 connector converts S-Video to RCA Composite Output or direct connects S-Video to TV set.

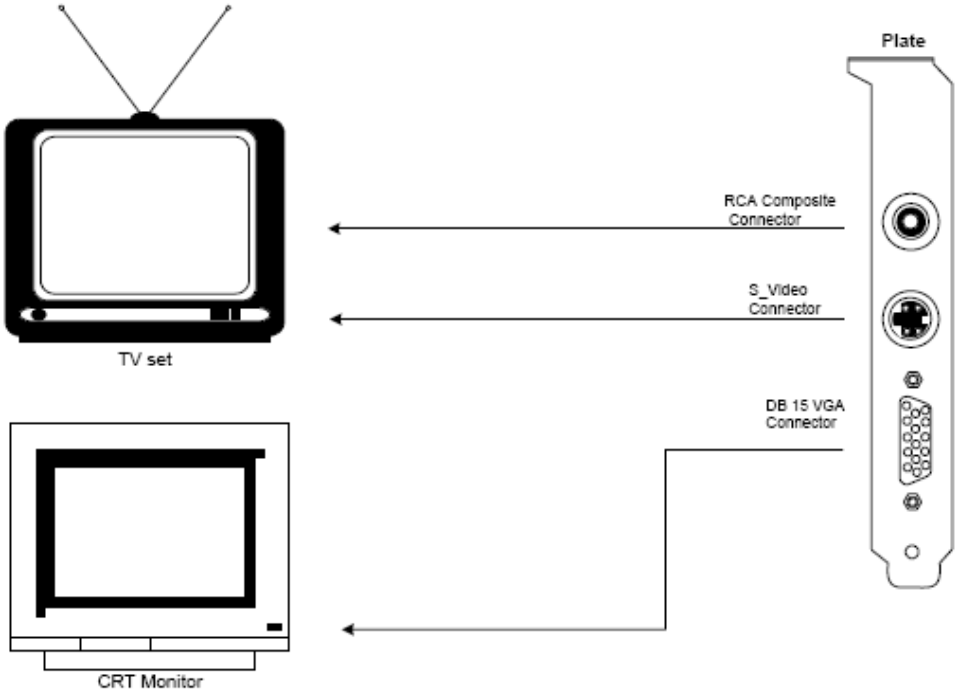
Video-338PCI-LP
Video-348PCI-LP / Video-348PCI-256LP



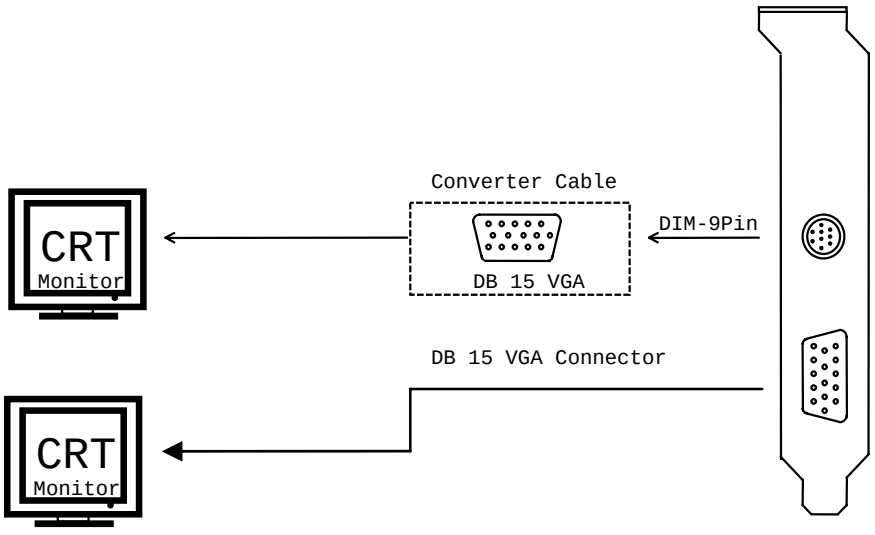
Video-338PCI-Twin / Video-338PCI-128Twin
Video-348PCI-Twin / Video-348PCI-256Twin



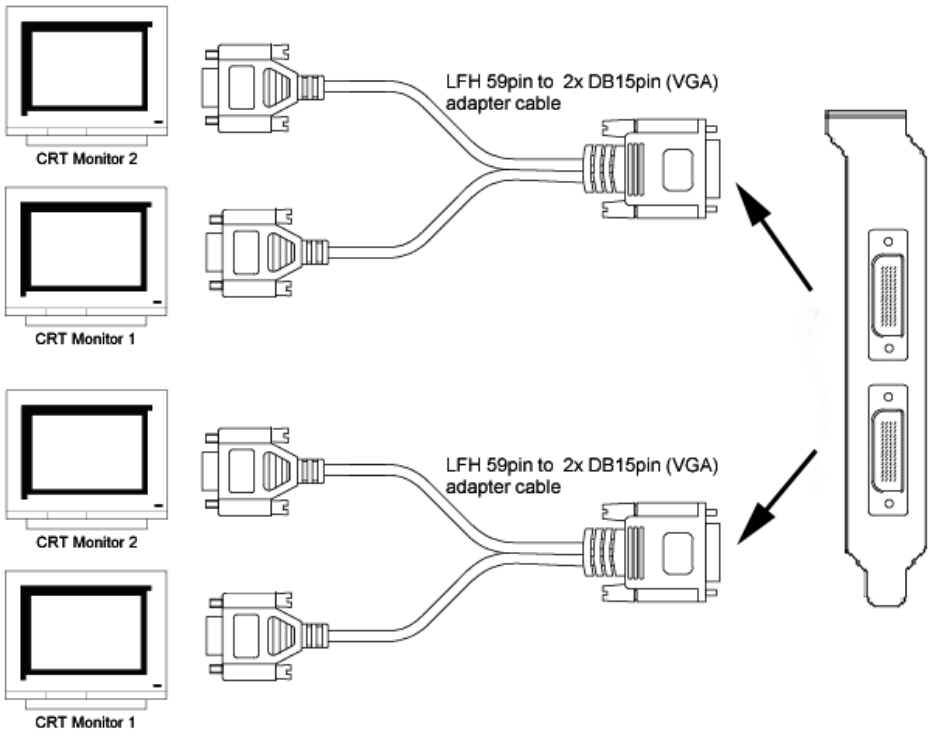
Video-338PCI-TV / Video-338PCI-128TV
Video-348PCI-TV / Video-348PCI-256TV



Video-338PCI-LX / Video-338PCI-DX
Video-348PCI-LX / Video-348PCI-DX

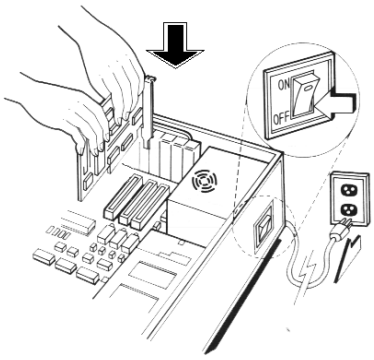


Video-348PCI-Quad



Hardware Installation

Installation Procedures



!! WARNING!!

Discharge static electricity by touching the **GROUND** such as metal part of your case connected with good power ground before you handle the electronic circuit boards.

The manufacturer assumes no liability for any damage, caused directly or indirectly, by improper installation of any components by unauthorized service personnel. If you do not feel comfortable performing the installation, consult with a qualified computer technician.

Steps:

1. Turn OFF all powers to your system, including any peripherals (printer, external drives, modem, etc.).
2. Disconnect the power cord and the monitor cable from the back of the computer.
3. Unfasten the cover mounting screws on your system and remove the system cover. Refer to your system user manual for instructions to determine the location of the mounting screws.
4. Remove the retaining screw that holds the slot cover in place. Slide the slot cover out and put the screw aside (you will need it to secure the adapter).
5. To install the adapter in PCI expansion slot, carefully line up the gold-fingered edge connector on the adapter directly above the expansion slot connector on the motherboard. Then press the adapter into place, completely. Use the (remaining) screw you removed to secure the adapter-retaining bracket in place.
6. Replace the computer cover. Secure the cover with the mounting screws you removed in Step 3.

***** For Video-348PCI-Quad, You will need to connect the 6-pin power connector to the video card. *****

You have now completed the installation of your new graphics adapter on your system.

Upgrade Steps:

Add or change your video adapter to an existing system, you may precede a few steps before you install the new hardware and software (video display driver). The followings are some of the considerations:

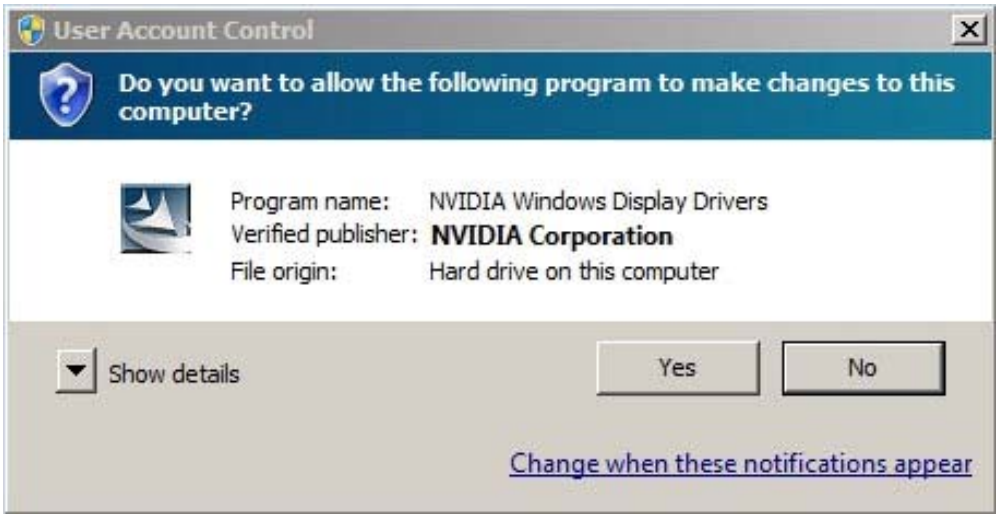
1. To add a new adapter, ensure the mainboard has available IRQ for new devices, and there is no conflict between each other.
2. If you are installing the video card into a system that has a previous version of NVIDIA Display Driver. It is highly recommended to remove the previous driver before installing a new version. To remove previous driver safely with new video card installed please do the following: 1) Press F8 during Windows boot to select and enter SAFE mode. 2) Enter Control Panel and click on “Add Remove Programs” 3) Uninstall previous versions of NVIDIA Video Display Driver.
3. If you try adding this video adapter to an ALL-IN-ONE mainboard (which video port built-in already), then you have to disable that port first. Otherwise, that will be a problem for the new video adapter setup.
4. The driver installation for system upgrade is the same as below, if error occurs when you proceed to step 1, 2 or 3, please consult with your system dealer or the existing hardware manufacturer support.

Software Installation

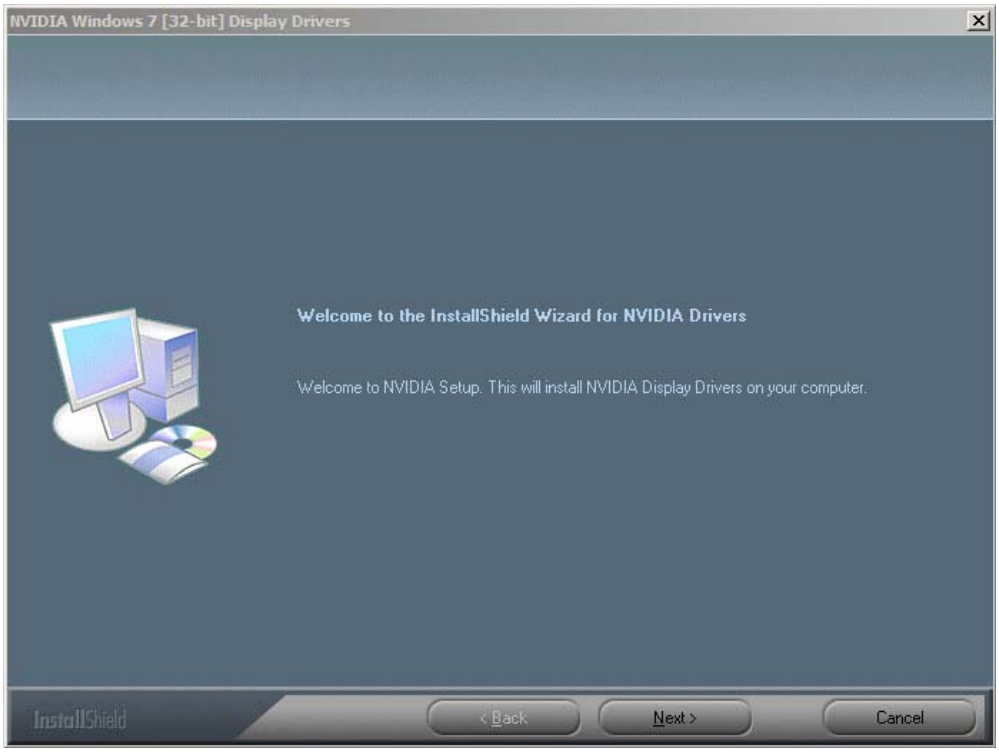
Windows® 7 and Vista Driver Installation

InstallShield® Program:

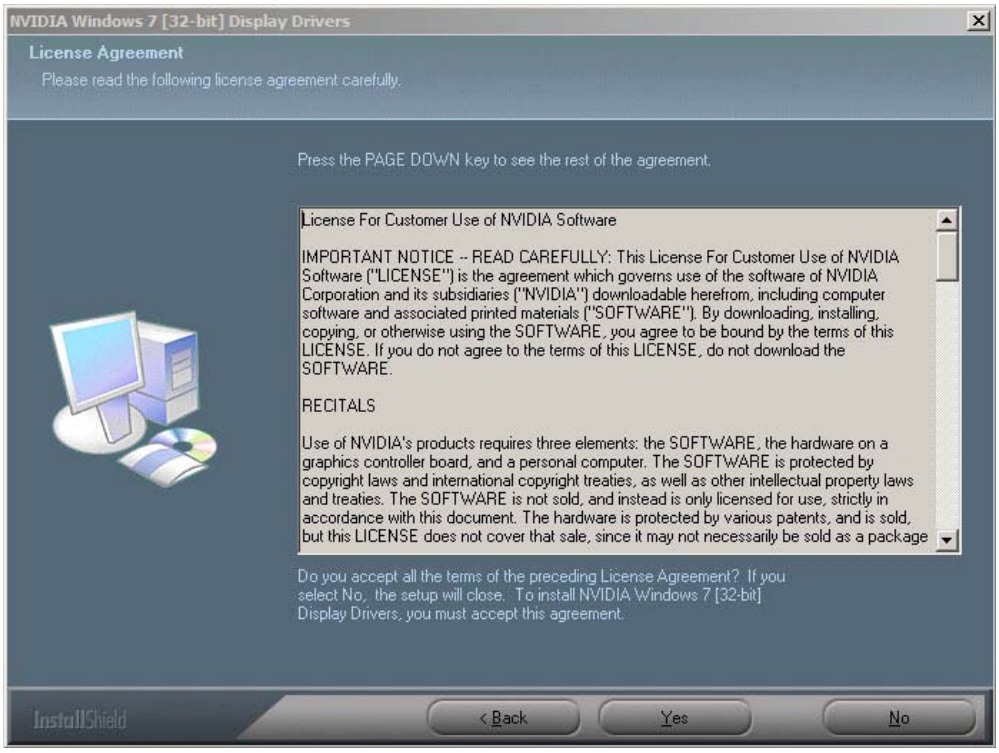
Microsoft Windows® 7 and Vista detects this new hardware and places appropriate display driver from its system folder automatically - it doesn't matter if you have added a new driver or changed the existing one. To maximize the video board acceleration and increase its performance, you may install the manufacturer's display driver as follows:


User Account Control
Do you want to allow the following program to make changes to this computer?
Program name: NVIDIA Windows Display Drivers
Verified publisher: NVIDIA Corporation
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear

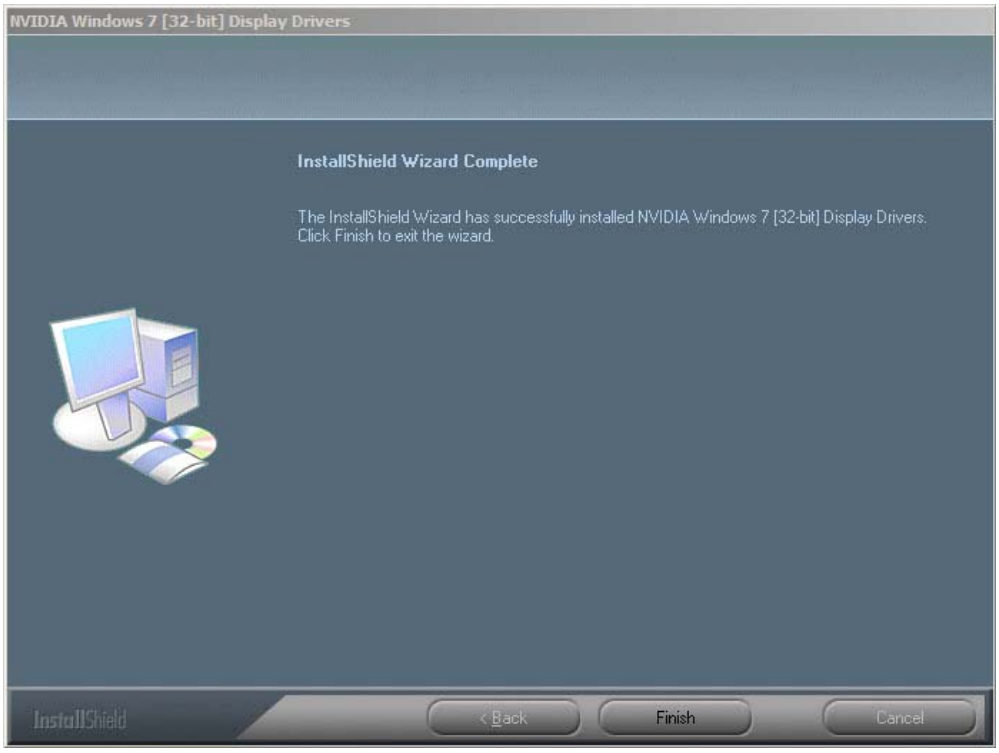
1. Click Yes to continue


NVIDIA Windows 7 [32-bit] Display Drivers
Welcome to the InstallShield Wizard for NVIDIA Drivers
Welcome to NVIDIA Setup. This will install NVIDIA Display Drivers on your computer.
InstallShield
< Back
Next >
Cancel

2. Click on “Next” to continue the process.


NVIDIA Windows 7 [32-bit] Display Drivers
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
License For Customer Use of NVIDIA Software
IMPORTANT NOTICE -- READ CAREFULLY: This License For Customer Use of NVIDIA Software ("LICENSE") is the agreement which governs use of the software of NVIDIA Corporation and its subsidiaries ("NVIDIA") downloadable herefrom, including computer software and associated printed materials ("SOFTWARE"). By downloading, installing, copying, or otherwise using the SOFTWARE, you agree to be bound by the terms of this LICENSE. If you do not agree to the terms of this LICENSE, do not download the SOFTWARE.
RECITALS
Use of NVIDIA's products requires three elements: the SOFTWARE, the hardware on a graphics controller board, and a personal computer. The SOFTWARE is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The SOFTWARE is not sold, and instead is only licensed for use, strictly in accordance with this document. The hardware is protected by various patents, and is sold, but this LICENSE does not cover that sale, since it may not necessarily be sold as a package
Do you accept all the terms of the preceding License Agreement? If you select No, the setup will close. To install NVIDIA Windows 7 [32-bit] Display Drivers, you must accept this agreement.
InstallShield
< Back
Yes
No

3. Click on “Yes” to agree to license agreement and continue.


NVIDIA Windows 7 [32-bit] Display Drivers
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed NVIDIA Windows 7 [32-bit] Display Drivers. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

4. Click on “Finish” to complete the installation.

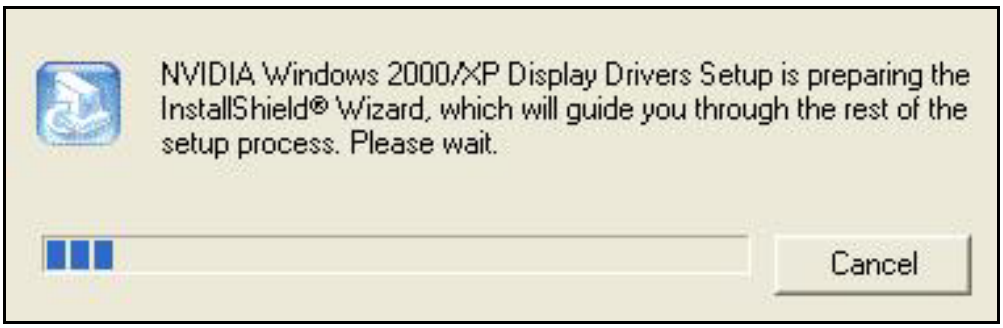
Windows® XP Driver Installation

InstallShield® Program:

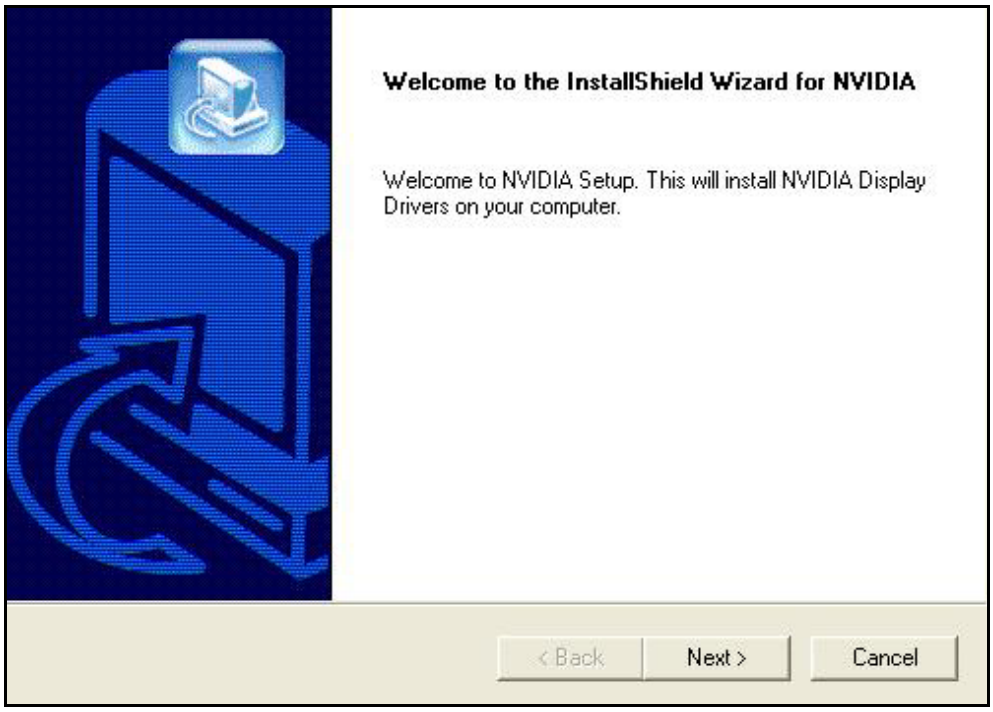
Microsoft Windows® XP detects this new hardware and places appropriate display driver from its system folder automatically - it doesn't matter if you have added a new driver or changed the existing one. To maximize the video board acceleration and increase its performance, you may install the manufacturer's display driver as follows:

* Please note your "Welcome Screen" will be different depending on the model of your card. *

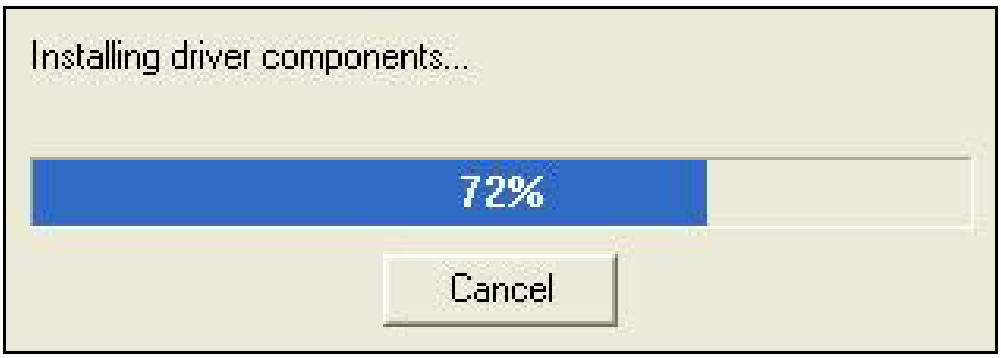
1. Autorun feature brings-up the "Welcome Screen", and you may point to "Display Driver" and then press on it.


NVIDIA Windows 2000/XP Display Drivers Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

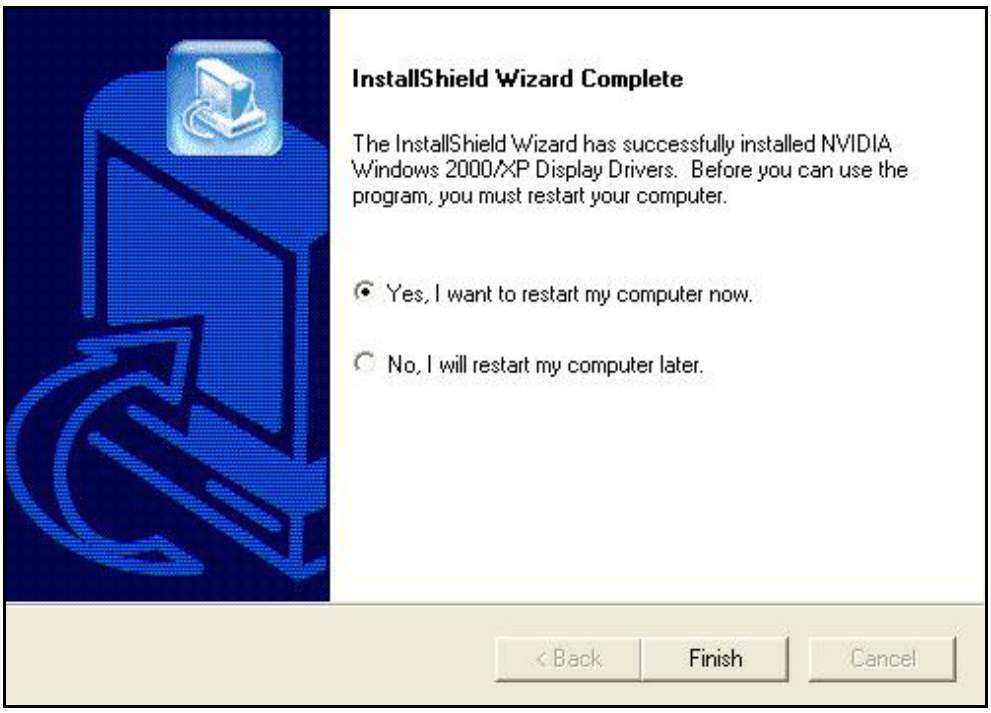
2. Microsoft InstallShield® Wizard has start loading its setup process; please wait until it has completed.


Welcome to the InstallShield Wizard for NVIDIA
Welcome to NVIDIA Setup. This will install NVIDIA Display Drivers on your computer.
< Back
Next >
Cancel

3. Click on “Next” to continue the process.



4. The Windows system will copy all driver files from source media to your local hard disk; please wait until the process has completed.


InstallShield Wizard Complete
The InstallShield Wizard has successfully installed NVIDIA Windows 2000/XP Display Drivers. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
< Back
Finish
Cancel

5. Click on “Finish” to restart your computer, the new display driver will be in place after Windows boots-up.

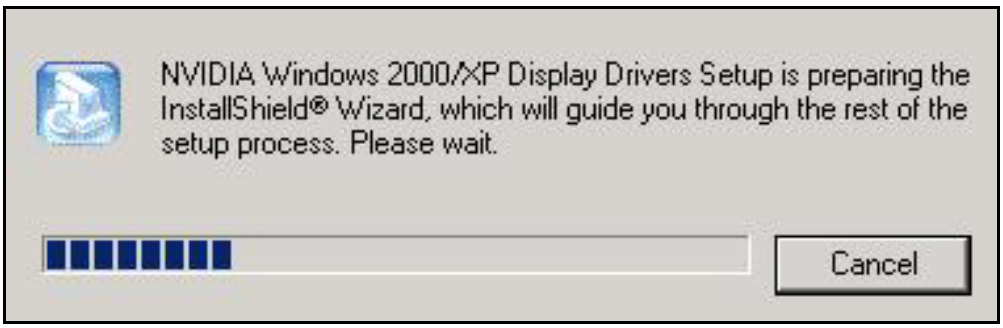
Windows® 2000 Driver Installation

InstallShield® Program:

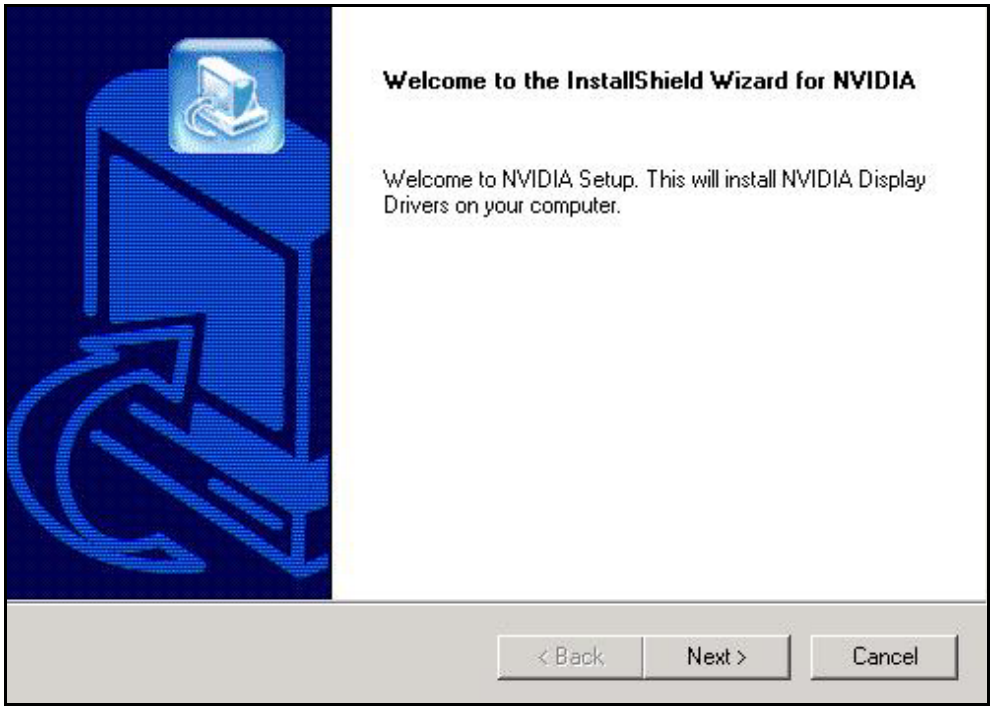
Microsoft Windows®2000 detects this new hardware and places appropriate display driver from its system folder automatically - it doesn't matter if you have added a new driver or changed the existing one. To maximize the video board acceleration and increase its performance, you may install the manufacturer's display driver as follows:

* Please note your "Welcome Screen" will be different depending on the model of your card. *

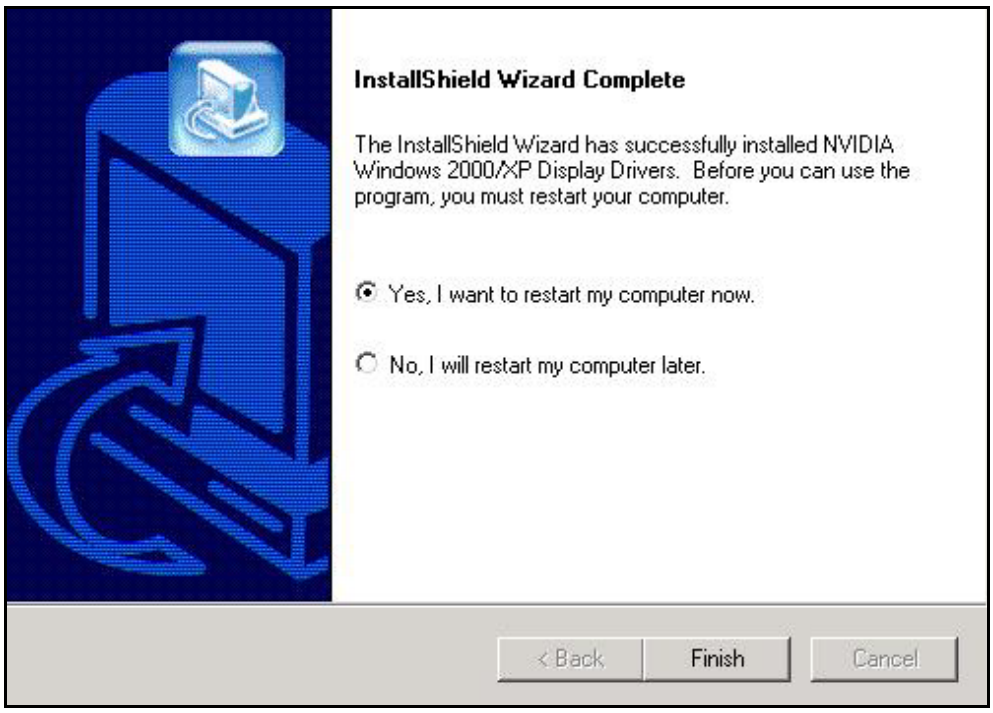
1. Autorun feature brings-up the "Welcome Screen", and you may point to "Display Driver" and then press on it.


NVIDIA Windows 2000/XP Display Drivers Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

2. Microsoft InstallShield® Wizard has start loading its setup process; please wait until it has completed.


Welcome to the InstallShield Wizard for NVIDIA
Welcome to NVIDIA Setup. This will install NVIDIA Display Drivers on your computer.
< Back
Next >
Cancel

3. Click on “Next” to continue the process.


InstallShield Wizard Complete
The InstallShield Wizard has successfully installed NVIDIA Windows 2000/XP Display Drivers. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
< Back
Finish
Cancel

4. Click on “Finish” to restart your computer, the new display driver will be in place after Windows boots-up.

Video-348PCI-Quad --- 4 output display configuration – extended desktop display

1. Right click on desktop, go to Display properties > Settings page
2. If all 4 monitors are connected to the video card then should see number 1 through 4.
3. Click the numbers icons in grey color and check the box “Extend my desktop Windows onto this monitor”, repeat for other number icons still in grey. Click on “Apply” when done.
4. All 4 number icons should now be highlighted in Blue color and desktop background color should appear on these monitors now.

*** Video-348PCI-Quad – can not clone 4 monitors, can clone 2 monitors.**

Notice:

We believe that the all the installation steps mentioned above are clear from manufacturer software's CD to your operating system. Any procedures other than these processes have not been specified.

Technical Assistance

Q: Why is the display shifted or changed sizes when I switch display modes?

Explain and Suggestion:

Some monitors lack auto-sizing features or just do not synchronize properly to the video board output. In some cases, horizontal and vertical display adjustments may be necessary. Use the monitor control panel functions to adjust screen.

In other cases, mode type and refresh rate adjustments may be necessary. Use the utility program, which provided by video card manufacturer or production developer. To center the display with normal type (mode 3), and to reduce (decrease) the refresh rate with the monitor's specification.

Q: What kind monitors can display 800x600 modes or higher resolution mode?

Explain and Suggestion:

To display 800x600 resolution at 60Hz refresh rate, the monitor must be capable of synchronizing a 31.5KHz horizontal scan rate (e.g., NEC 2A, 3D). At 72Hz refresh rate, the monitor must be capable of synchronizing a 48.0KHz scan rate (e.g., Sony HG 1304, NEC 4D, 5D, Seiko 1450).

To display 1024x768 interlaced mode; the monitor must be capable of synchronizing a 35.5KHz horizontal scan rate (e.g., NEC 3D, Seiko 1430 or 1440). To display 1024x768 non-interlaced mode at 60Hz, the monitor must be capable of synchronizing a 48.7KHz scan rate (e.g., Sony HG 1304, NEC 4D, 5D, Seiko 1450).

To display 1024x768 non-interlaced mode at 70Hz, the monitor must be capable of synchronizing a 56.4KHz scan rate (e.g., NEC 4D).

Q: System hangs-up after installing video driver.

Explain and Suggestion:

Today, most video drivers are developed for 32-bit processing and may require a channel to Code/Decode. Conflict between device drivers and TSR (terminate-and-stay-resident) programs will inverted the display, and are particularly effectual at crashing computer. The most effective way to check for conflicts is to replace with the original video driver, or delete and re-install the current video driver to the system.

Accomplishing IRQs (Interrupt Request Query) settings or troubleshooting the conflicts on hardware source may necessary. Most AGP video cards designed for Plug-n-Play, that means video card IRQ's setup which controls by main board’s (motherboard) circuitry and BIOS. Physically pulling out other devices from

system, and re-starts the computer. Confirm and modify your IRQ addresses with qualified computer technician.

Q: Multiple images or unreadable screen after loading video driver.

Explain and Suggestion:

There are a variety of reasons why the display might be distorted. One common reason is a monitor mis-match. Some older multi-frequency monitors are unable to switch video modes without being turned off, then turned on again.

If the problem occurring in windows, make sure that you have loaded that proper video driver, and that the driver is compatible with the monitor being used. Try re-configuring your application software to use a compatible video mode. If problem persist in windows, load the standard generic VGA driver. The generic VGA driver should function properly with virtually every video board and VGA (or SVGA) monitor available.

If that is an unsatisfactory solution, you may have to upgrade to a monitor that supports the desired video mode.

Some new monitors are also synchronizing this problem because built-in DDC (Data-Digital-Channel) feature. Sometime that DDC automatically setup the display frequency without loading video driver. Try to turn it off, or change settings of monitor type in your system.

Q: Selection of color, resolution and refresh rate combination that always backs to default after restart the system.

Explain and Suggestion:

Accordingly, there must be a bug (defected source-code) in video driver, or in the system. Debug the source-code or fix the error in video driver that should be done by the driver developer. Likewise, upgrade the video driver from the manufacturer or from the original software developer is necessary.

Frequently Asked Questions (FAQ)

Q1 Why do we need 3D graphics capability in our PC?

Answer

3D technology is becoming increasingly important (and common) not only in games, but also in other applications such as VRML, which allows 3D scene descriptions in Web applications. 3D technology is used for image editing, modeling, and an increasing number of in home and business applications. In games, as well as other applications, 3D acceleration not only allows better visual qualities and more realistic scenery attributes than software alone, but it also allows a higher frame rate, which translates into a more interactive experience for the end user.

Q2 What does “Rendering Engine” mean?

Answer

“Rendering Engine” generically applies to the part of the graphics engine that draws 3D primitives, usually triangles. In most implementations, the rendering engine is responsible for interpolation of edges and "filling in" the triangle.

Q3 What does the set-up engine do in a graphics controller?

Answer

A set-up engine allows drivers to pass triangles in the form of raw vertex information; whereas, most common designs force triangles to be pre-processed for the rendering engine in terms of delta values for edges, color, and texture.

Q4 Why does a 3D graphics chip need to have both a rendering engine and a setup engine?

Answer

Any “3D application”, a game, VRML, or modeling package, can benefit from 3D rendering. This is especially true of an application that uses texturing extensively, because texturing and texture filtering are very intensive operations at the pixel level in terms of CPU operations and demands for memory bandwidth. Without a set-up engine in a graphics controller, the CPU has to calculate the delta values for edges, color, and textures; the drivers need to handle ten (10) times more extensive data. This results in slower 3D pipeline operations between the CPU and the graphics controller.

Q5 If we use powerful CPUs, such as a Pentium™ 200, can a standard 2D graphics card achieve 3D performance?

Answer

Yes and no. Software rendering can take advantage of "tricks" learned by force of necessity through years of trial and error. With such stratagems, the speed of software rendering for simple scenes can approach that of low-level hardware 3D rendering. On the other hand, as scenes become more complex (or frame sizes become larger), there are conflicts between using the CPU for high-level game logic, geometry, lighting, and rendering, all of which increase their demands. No current CPU or system can perform advanced quality-enhancements (bilinear filtering and alpha blending) in real time. Even general case texture mapping with RGB lighting is too much for the current CPU generation.

Q6 What does "software 3D" mean?

Answer

Software 3D is generally used to mean using non-specific (2D) hardware in conjunction with the CPU to render for 3D applications. Some of these techniques allow usable 3D applications when high-powered and/or MMX™-equipped CPU's are employed along with special-case software optimization techniques. As stated above, SW 3D can achieve credible results with today's (software optimized) applications, but the rising popularity of good 3D hardware at the consumer price level is inexorably compelling the public to expect hardware level scene enhancements and frame rates.

Pinout and Sync Frequencies

Analog Color Display Pinouts (DB 15)

PIN	FUNCTION
1	Red Video[1]
2	Green Video[1]
3	Blue Video[1]
4	Not Used
5	Ground
6	Red Return (ground)
7	Green Return (ground)
8	Blue Return (ground)
9	Vcc (+5v DDC Power)
10	Sync Return (ground)
11	Monitor ID (not used)
12	SDA (DDC support)
13	Horizontal Sync
14	Vertical Sync
15	SCL (DDC support)

Note: Analog monochrome type monitors use green video for all video input and ignore red and blue video.

Conversion Table: Pin Adapters

If you will be using a 9-to-15-pin adapter cable to link your 9-pin monitor connector to the 15-pin accelerator card connector, check Table carefully before you install the cable. The 9-to-15 pin adapter cables are available from a variety of sources, but they need to match the specifications in Table to work properly with your new card.

The adapter cable requires a D-shaped 9 pin female connector and a D-shaped 15 pin male connector.

9-to-15 Pin Conversion Table

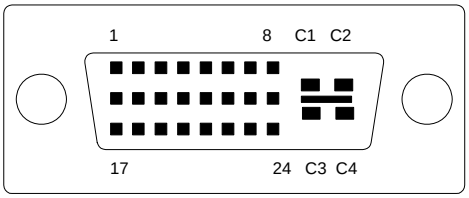
9 PIN SIGNALS	PIN NO.	15 PIN SIGNALS	PIN NO.
Red	1	Red	1
Green	2	Green	2
Blue	3	Blue	3
Horz Sync	4	Horz Sync	13
Vert Sync	5	Vert Sync	14
Red Ground	6	Return Red	6
Green Ground	7	Return Green	7
Blue Ground	8	Return Blue	8
Sync Ground	9	Digital Ground	10
		Ground	5

Analog Video Signals

Black Level = 0 V

Full Intensity (White) Level = +0.7 V

Digital Visual Interface (DVI-I) Connector



24 pin DVI FEMALE connector built-in onboard.

Pin Number	Signals
1	TMDS Data 2 -
2	TMDS Data 2 +
3	TMDS Data 2 Shield
4	No Connection
5	No Connection
6	DDC Clock
7	DDC Data
8	No Connection
9	TMDS Data 1 -
10	TMDS Data 1 +
11	TMDS Data 1 Shield
12	No Connection
13	No Connection
14	+5 V Power
15	Ground (for +5 V)
16	Hot Plug Detect
17	TMDS Data 0 -
18	TMDS Data 0 +
19	TMDS Data 0 Shield
20	No Connection
21	No Connection
22	TMDS Clock Shield

23	TMDS Clock +
24	TMDS Clock <

Technical Support

In the event you have a technical problem with this product, please read the README files in the software CD_ROM. Updated drivers are available through Jaton Web site. Have following information handy when you contact technical support:

- ☑ Name of the product.
- ☑ Software Driver and Version.
- ☑ System Information, such as CPU speed, BIOS version, Monitor Specification, etc.
- ☑ Description of the problems including any error messages.

Telephone:	(510) 933-8886 (Mon. - Fri. 9am-5pm PST)
FAX:	(510) 933-8887
email:	vgasupport@jaton.com
Website:	www.jaton.com

How to Obtain Warranty Service

In the worldwide contact:

www.jaton.com

In United States contact:

Jaton Corporation.

Service Center

47677 Lakeview Blvd.,

Fremont, CA 94538

Tel: 510-933-8886

Fax: 510-933-8887

In Taiwan contact:

Jaton Technology Co., Ltd.

10F, NO.194, SEC.3, TA TUNG RD., HIS-CHIH,

TAIPEI, TAIWAN R.O.C.

Tel : 886-2-8647-1899

Fax : 886-2-8647-2679

In Australia contact:

Jaton Technology pty, Ltd.

Unit 8, 41-49 Norcal Road,

Nunawading, Vic 3131 Australia

Tel: (Mel) 03 9873 3999 (Syd) 02 9476 8781

Fax 03 9873 3933

FCC SHIELDED CABLE WARNING:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation,

“SHIELD INTERFERENCE CABLE (S) MUST BE USED ACCORDING TO FCC 15.27©.”

CAUTION:

Changes or modifications not expressly approved by the Manufacturer could void your authority to operate this equipment in accordance with FCC rules and regulations.

SOFTWARE LICENSE AGREEMENT:

The Company grants the customer a non-exclusive, non-transferable license to use the software in this package for internal use on a single computer system. No other license of any kind is granted to any part of the product or any of the intellectual property therein.

Limited Warranty

Manufacturer warrants that the products sold hereunder are free from defects in material and workmanship for a period of two (2) years from manufacturing date. This limited warranty applies only to the original purchaser of Jaton Product and is not transferable. This limited warranty does not apply if failure to the Product Registration, or over thirty (30) days from purchase (original invoice date). This Limited Warranty does not cover any incompatibilities due to the user's computer, hardware, software or any related system configuration in which the Jaton Products interfaces. Manufacturer does not guarantee the compatibility of the video cards with any hardware components, systems or software that's available in the market. If a product is deemed incompatible by Manufacturer tech support, the product in question is therefore not defective and thus no warranty will be provided. It is the buyer's sole responsibility to do their own research and determine if the products to be purchased are compatible to the hardware components, systems or software they intend to use with. Proof of purchase will be required before any consideration by Manufacturer occurs.

Buyer acknowledges that the goods sold by Jaton Corp. are being used or incorporated into other products or systems, and the ultimate safety of those product or systems are the sole responsibility of Buyer. Buyer agrees that it and/or its customers are solely responsible and agrees that the use of Jaton Corp. products for any purpose cannot in any way be controlled by Jaton Corp., and buyer or its customers are responsible for verifying the accuracy and completeness of any information contained in, entered into, or used in connection with Jaton Corp. products. Buyer assumes all risks and liability for use of Jaton Corp. products in other products or systems. In addition, Jaton Corp. is not responsible for any archival, backup or disaster recovery services. In no event shall Jaton Corp. be liable for any damages of any kind sustained by Buyer, any customer of Buyer, any patient, or others for any suit or claim or demand arising

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All Trademarks and Registered Trademarks belong to respective owners.

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Other Limits

The forgoing is in lieu of all other warranties, expressed or implied. Including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Manufacturer does not warrant against damages or defects arising out of improper or abnormal use of handling of the products; against defects or damages arising from improper installation (where installation is by persons other than Manufacturer), against defects in products or components not manufactured or installed by Manufacturer, or against damages result from non-manufacturer made products or components. This warranty does not apply if accident, abuse, nor misuse has damaged the Product. This warranty also does not apply to products upon which repairs have been affected or attempted by persons other than pursuant to written authorization by Manufacturer.

Exclusive Obligation

This warranty is exclusive. The sole and exclusive obligation of Manufacturer shall repair or replace the defective products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, and strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, Manufacturer shall not be liable for incidental, special, or consequential damage.

Other Statements

Manufacturer's employees or representatives' **ORAL OR OTHER WRITTEN STATEMENTS DO NOT CONSTITUTE WARRANTIES**, shall not be relied upon by Buyer, and is not a part of the contract for sale or this Limited Warranty.

Terms and Conditions

Direct Jaton Customer:	This warranty applies only for a period of two (2) years from purchase date of Jaton original invoice.
Reseller/ Vendor:	This warranty applies only for a period of two (2) years from manufacturing date.
Registered User:	This warranty applies only for a period of two (2) years from purchase date and register within 30 days of purchase date from legal reseller.
Others:	If the products do not conform to this Limited Warranty (as herein above described), Manufacturer should charge services such as repair, replacement whether based on its costs. Shipping and installation of the

replacement Products or replacement parts shall be at User's expanse.

Services agreement:

(1) All applicants shall complete service request form from Manufacturer.

(2) All returned checks will be charged a $20.00 fee by Manufacturer.

(3) All repair and replacement services allow 4-6 weeks from the date of receiving by Manufacturer.

(4) All products without warranties require service processing fee $20 (payment in advance), which is not refundable.

Entire Obligation

This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in force and effect. Some states do not allow limitation of implied warranties, or exclusive or limitation on product incidental or consequential damages, so above limitation may not apply to you. This warranty gives you specific legal rights. You may have other rights, which may vary from state to state.

This warranty applies only to this product, and is governed by the law of the State of California.

The information in this document is subject to change without notice.

Reducing Warranty Claim Rejections

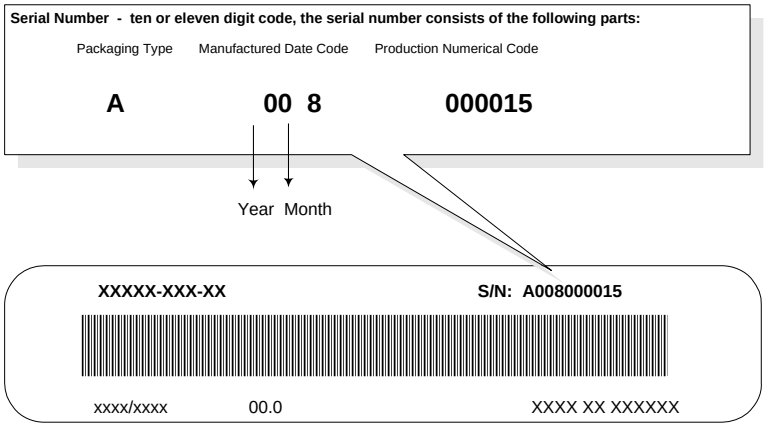
To reduce the potential of incurring damages not covered by Manufacturers warranties, we strongly recommend the following:

- Read your manuals before installing peripherals and/or before making changes to the machine's configuration;
- Ask your dealer if there are any known problems with the system requirements or installation procedures for any add-on products that your are purchasing;
- Buy industry standard products where compatibility issue are less likely to surface;
- If you are unsure about installation for a new product, contact your dealer's service department.

We believe it is important for you to know and understand what your warranty coverage provides and what it does not.

We also want you to be aware that most hardware warranties only relate to the function of the hardware. In most cases, no assurances are given by the manufacturer that the hardware item will work in conjunction with any other hardware item. If a computer product is not working because it is not compatible with another product, or because it has not been properly installed and set-up, the manufacturer does not pay for the service time. To help avoid these inconveniences, contact a professional consultant that one can help you determine the possibility of incompatibility issue before you purchase add-on or accessories.

Warranty Service Use Only



Product Label and Manufactured Date Code